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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/677,282	10/03/2003	Noritaka Okuda	3718-0105P	9656
2292 7590 08/16/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER CHENG, PETER L	
			ART UNIT 2625	PAPER NUMBER
			NOTIFICATION DATE 08/16/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No. 10/677,282	Applicant(s) OKUDA ET AL.	
	Examiner Peter L. Cheng	Art Unit 2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2003.
 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-15 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
 10) ☒ The drawing(s) filed on 03 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/3/2003, 1/5/2004, 8/29/2005</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because:

- **Fig. 1:** the specification [e.g., **page 6, lines 21, 29**] refers to the "Frame Data Correction Device" as reference number **3**; the specification [e.g., **page 5, line 4**]a/ so refers to the "Frame Data Correction Device" as reference number **10**;

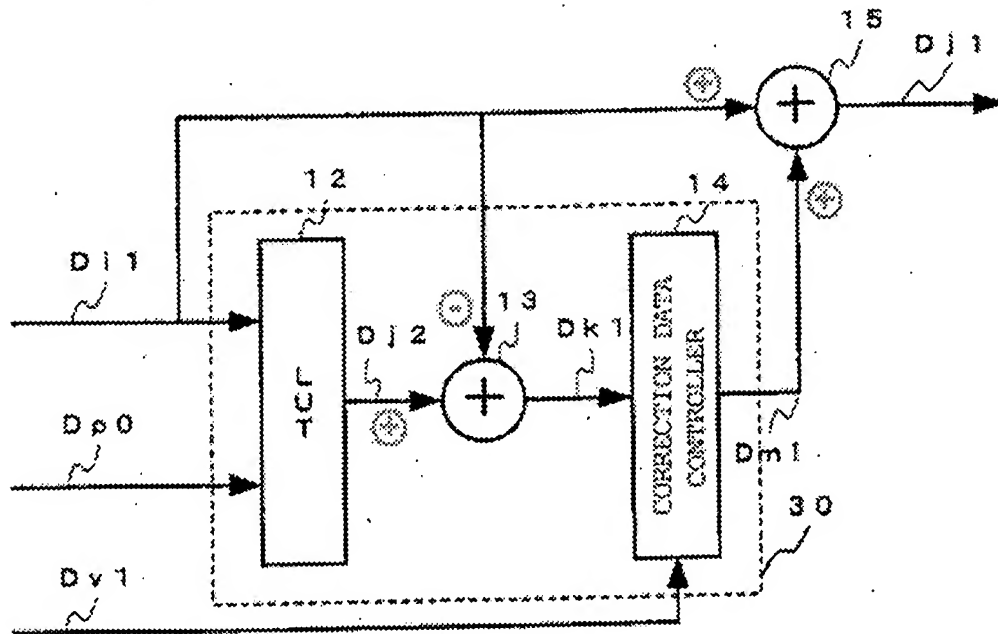
Fig. 1 cites, **10 FRAME DATA CORRECTION DEVICE**; if applicant intended to associate reference number **3** with the "Frame Data Correction Device", the citation should be changed to **3 FRAME DATA CORRECTION DEVICE**;

*However, for the purpose of claim interpretation, it is assumed that applicant intended to cite reference number **10** as the "frame data correction device" comprising a "correction data output device" (reference number **30**).*

- **Fig. 4:** the specification defines "Dk1" as being equal to "Dj2" minus "Di1"; "Dk1 obtained by subtracting the object frame data Di1 from the ... LUT data Dj2"; **page 16, lines 13 – 14**;

In addition, the specification defines "Dj1" as being equal to "Di1" plus "Dm1";
"the object frame data Di1 is corrected by adding the ... correction data Dm1
to the mentioned object frame data Di1"; **page 12, lines 2 – 4;**

for clarity, suggest adding "polarity signs" at adders 13 and 15 as shown
below:



- **Fig. 11:** the specification defines "w" as being equal to "Di1" minus the "halftone data"; "The subtracter 20 subtracts the ... halftone data from the ... object frame data Di1 and outputs a signal ... referred to as a gray-level signal w"; **page 17, lines 23 – 27;**

similarly, suggest adding "polarity signs" at adders 13 and 20 as shown below:

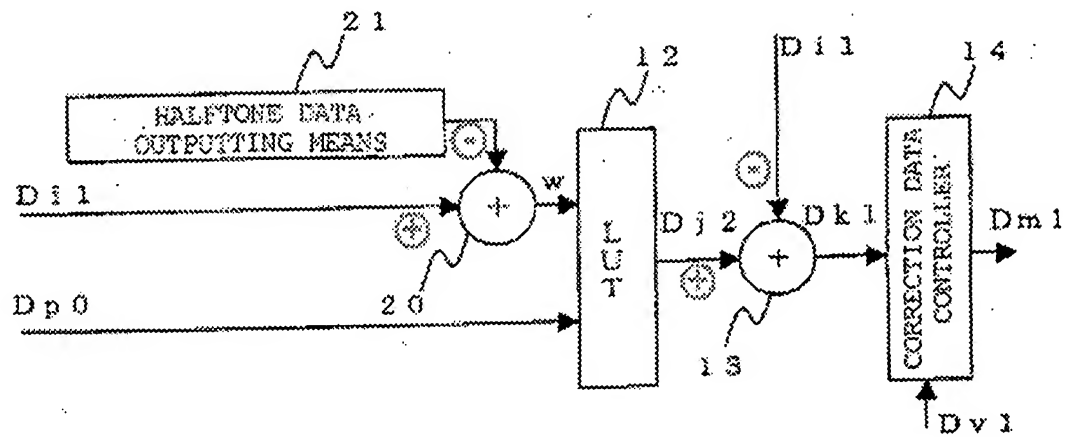


Fig. 11

- **Fig. 13:** similarly, suggest adding "polarity signs" at adders 13 and 20 as shown below:

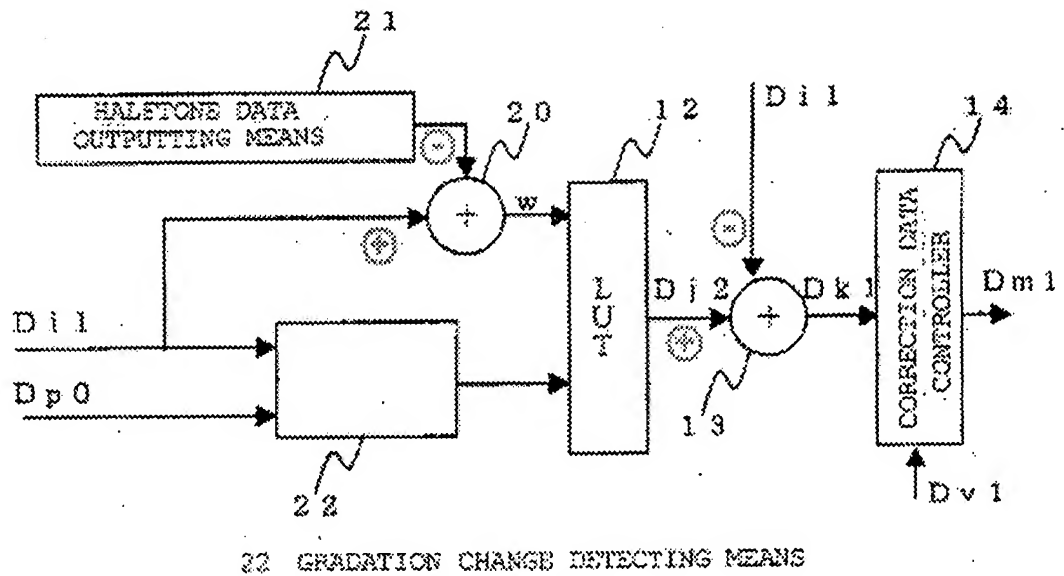


Fig. 13

- **Fig. 17:** similarly, suggest adding "polarity signs" at adder 13 as shown below:

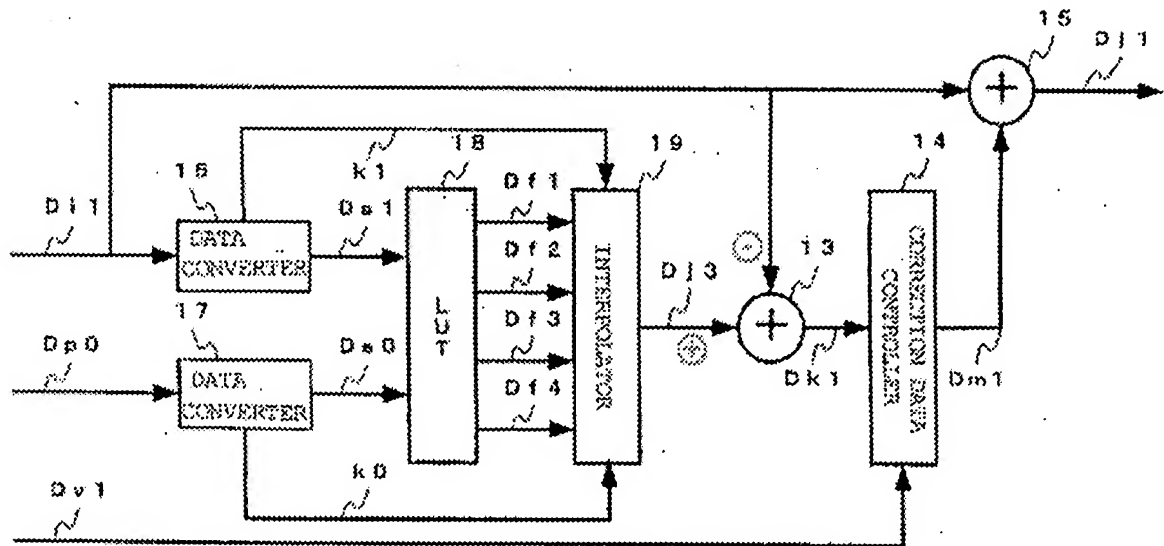
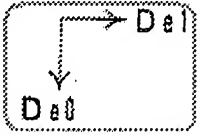
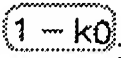


Fig. 17

- **Fig. 19:** the axes in the upper left corner are mislabeled; the horizontal axis should be **De1** and the vertical axis should be labeled **De0** as shown

here ; in addition, suggest moving the "0", currently located below "1-k", so that it appears as ,

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version

of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: **Fig. 17** reference number **31** (correction data output device) as cited on **page 24, lines 18, 22, 29** and **page 25, lines 1 - 2**. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to because:

- **Lines 2, 9:** regarding "correction data outputting means", the word "means" should be avoided;
- **Line 7:** regarding "correction data correction means", the word "means" should be avoided;

Correction is required. See MPEP § 608.01(b).

5. The disclosure is objected to because of the following informalities:

- **Page 5, line 4; page 8, line 22; page 9, line 10; page 10, line 13; page 11, lines 15, 21, 22; page 23, lines 25 – 27; page 24, lines 10 – 13, 18 - 19:** the specification refers to the “Frame Data Correction Device” as reference number **10**;

Page 6, lines 21, 25 – 26, 29; page 7, lines 5 – 6, 7; page 10, line 26: the specification refers to the “Frame Data Correction Device” as reference number **3**;

a single, unique reference number (i.e., either **3** or **10**) should be used to designate a “Frame Data Correction Device”;

- **Page 11, line 29; page 12, line 2; page 24, lines 20, 23, 26:** for clarity, suggest replacing **subtractor 15** with **adder 15**;
- **Page 18, line 2:** suggest rephrasing **is going to be explained** with **will be explained**, or similar wording;
- **Page 21, line 5:** it is assumed applicant intended to cite **In Fig. 15 (c)** instead of **In Fig. 9 (c)**;

- **Page 24, lines 18, 22, 29; page 25, lines 1 - 2:** the reference number **31** associated with the “correction data output device **31**” is not shown in **Fig. 17**; since reference number **30** was previously associated with a “correction data output device”, applicant may have intended to cite reference number **30** instead of **31**;
- **Page 25, lines 17 – 18:** from the description of **Fig. 19**, it is assumed applicant intended to cite **first interpolation coefficient k1** to an **interpolator 19** instead of **first interpolation coefficient k0** to an **interpolator 19**;
- **Page 25, lines 19 – 20:** similarly, from the description of **Fig. 19**, it is assumed applicant intended to cite **second interpolation coefficient k0** to the **interpolator 19** instead of **second interpolation coefficient k1** to the **interpolator 19**;
- **Page 26, lines 15 - 16:** it is assumed applicant intended to cite **Fig. 18** instead of **Fig. 12**;

- **Page 26, lines 22 – 23:** from the description of **Fig. 19**, it is assumed applicant intended to cite **first interpolation coefficient k1** instead of **first interpolation coefficient k0**;
- **Page 26, lines 23 – 24:** similarly, from the description of **Fig. 19**, it is assumed applicant intended to cite **second interpolation coefficient k0** instead of **second interpolation coefficient k1**;

Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1 - 15 are rejected under 35 U.S.C. 102(e) as being anticipated by **ISHII**
[US Patent Application 2004/0012551 A1].

As for claims 1 and 12, ISHII teaches a correction data output device comprising:

correction data outputting means for outputting correction data

[Fig. 4 conversion table 420; "This conversion table 420 is configured to generate over-drive emphasizing data based on two IDDT and FBDT values. The output data is referred to as ODDT (over-drive data)"; page 4, paragraph 57, lines 8 - 11]

that corrects object frame data included in an inputted image signal on the basis of said object frame data

[Input data (IDDT) corresponds to the "object frame data". "The input data is referred to as IDDT (input display data)"; page 4, paragraph 57, lines 3 - 4]

and previous frame data, which are one frame period previous to the object frame data

[Frame buffer data (FBDT) corresponds to the "previous frame data". "FRAME BUFFER 410 makes a one frame time delay between its input to output with the bus width being 6-bits wide"; page 4, paragraph 57, lines 1 - 3. The "output data of frame buffer 410 is referred to as FBDT (frame buffer data)"; page 4, paragraph 57, lines 4 - 5];

and correction data correcting means for correcting correction data that corrects and outputs the correction data outputted from *said correction*

data outputting means on the basis of said object frame data and said previous frame data

[Fig. 4 buffer 430, comparator 450, and mux 440 correspond to the “correction data correcting means”. When the “frame buffer data” (FBDT) equals the “input display data” (IDDT), the comparator 450 selects the lower 2 bits of IDDT, via buffer 430 and mux 440, as the lower 2 bits of the output signal. Otherwise, the lower 2 bits of the “over-drive data” (ODDT) are used as the lower 2 bits of the output signal. In this way, the lower 2 bits of the correction data are “corrected”.

“LSB 2-bit data are multiplexed by MUX 440 and selected to output as ODDT LSB 2-bit. This MUX 440 selects IDDT LSB 2-bit when IDDT = FBDT using CMP (comparator) 450 output equal signal. BUF logic 430 adjusts clock timing between ODDT and IDDT”; **page 4, paragraph 57, lines 11 – 15].**

Regarding claim 2, ISHII further teaches the correction data output device according to claim 1,

wherein the correction data outputting means comprises bit number converting means that reduces number of bits of the object frame data or number of bits of the previous frame data

[“Fig. 2(b) is an example of a frame buffer with a data compression scheme. This example frame buffer 280 uses publicly well-known CSC (color space conversion) scheme”; page 2, paragraph 23, lines 1 – 4. “Input data to the

scheme are 8-bit RGB data and are converted to 6-bit YCrCb format (block 288) and written into memory block 281. These data are read out and recovered to 8-bit RGB data format (block 282) and output as FBDT after just one frame interval"; **page 2, paragraph 24, lines 1 – 5**. This compression scheme allows a smaller frame buffer memory to be used.

"Fig. 4 is an example of a DATA Emphasizer for an over-drive algorithm ... Input data are 8-bit RGB (Red, Green and Blue) component data. This data-emphasizing block 400 is commonly applied to all R, G, or B data"; **page 4, paragraph 56, lines 1 – 5**. In addition to the bit compression scheme just noted, Fig. 4 illustrates a further "bit number converting means" that reduces the number of bits from 8 to 6 of both object frame data (IDDT) and previous frame data (FBDT). Most significant 6-bit IDDT and FBDT are input to the "correction data outputting means" (i.e., "conversion table" **420**).

Regarding claims 3 and 13, ISHII further teaches the correction data output device according to claim 1,

further comprising change quantity output means for outputting change quantity between the object frame data and the previous frame data [Fig. 4 comparator 450 corresponds to the "change quantity output means"; it outputs a signal indicating whether FBDT and IDDT are "equal" or not];

wherein the correction data correcting means corrects the correction data outputted from the correction data outputting means on the basis of said change quantity outputted from said change quantity outputting means

[Fig. 4 buffer 430, comparator 450, and mux 440 correspond to the “correction data correcting means”. When the “frame buffer data” (FBDT) equals the “input display data” (IDDT), the comparator 450 selects the lower 2 bits of IDDT, via buffer 430 and mux 440, as the lower 2 bits of the output signal. Otherwise, the lower 2 bits of the “over-drive data” (ODDT) are used as the lower 2 bits of the output signal. In this way, the lower 2 bits of the correction data are “corrected”.

“LSB 2-bit data are multiplexed by MUX 440 and selected to output as ODDT LSB 2-bit. This MUX 440 selects IDDT LSB 2-bit when IDDT = FBDT using CMP (comparator) 450 output equal signal. BUF logic 430 adjusts clock timing between ODDT and IDDT”; page 4, paragraph 57, lines 11 – 15].

Regarding claim 4, ISHII further teaches the correction data output device according to claim 1,

wherein the correction data outputting means has a data table composed of correction data and said correction data are outputted from said data table on the basis of said object frame data and said previous frame data.

[Fig. 4 conversion table 420; “This conversion table 420 is configured to generate over-drive emphasizing data based on two IDDT and FBDT values.

The output data is referred to as ODDT (over-drive data)"; **page 4, paragraph 57, lines 8 – 11.**

The "input display data" (IDDT) corresponds to the "object frame data". The "frame buffer data" (FBDT) corresponds to the "previous frame data"]],

Regarding claim 5, ISHII further teaches the correction data output device according to claim 1,

wherein the correction data outputting means outputs correction data for correcting data that correspond to number of gradations of the object frame

[Fig. 4 conversion table 420; "The IDDT and FBDT become input to the CONV. TABLE 420, which then accesses its internal memory (conversion table) and outputs 8-bit over-drive data. This conversion table 420 is configured to generate over-drive emphasizing data based on two IDDT and FBDT values. The output data is referred to as ODDT (over-drive data)"; page 4, paragraph 57, lines 5 – 11.

The output over-drive data corrects and replaces the input display data (i.e., object frame data). As shown in **Fig. 3**, the output over-drive data is fed to a "source driver" **311** which controls a "TFT LCD panel" **310**].

Regarding claim 6, ISHII further teaches the correction data output device according to claim 1,

wherein the correction data correcting means corrects the correction data outputted from the correction data outputting means thereby increasing or decreasing said correction data

[Fig. 4 buffer **430**, comparator **450**, and mux **440** correspond to the “correction data correcting means”. When the “frame buffer data” (FBDT) equals the “input display data” (IDDT), the comparator **450** selects the lower 2 bits of IDDT, via buffer **430** and mux **440**, as the lower 2 bits of the output signal. Otherwise, the lower 2 bits of the “over-drive data” (ODDT) are used as the lower 2 bits of the output signal. In this way, the lower 2 bits of the correction data are “corrected”.

“LSB 2-bit data are multiplexed by MUX 440 and selected to output as ODDT LSB 2-bit. This MUX 440 selects IDDT LSB 2-bit when IDDT = FBDT using CMP (comparator) 450 output equal signal. BUF logic 430 adjusts clock timing between ODDT and IDDT”; **page 4, paragraph 57, lines 11 – 15.**

The “correction data correcting means” comparator **450** selects whether the lower 2 bits of IDDT or the lower 2 bits of ODDT are used as the lower 2 bits of the output signal. Depending on the values of IDDT and ODDT, the resulting

output signal could increase or decrease relative to ODDT (i.e., the "correction data")].

Regarding claim 7, ISHII further teaches the correction data output device according to claim 1,

further comprising recording means for recording the object frame data included in the inputted image signal

[Fig. 4 frame buffer 410 is the "recording means" for recording the object frame data].

Regarding claim 8, ISHII further teaches the correction data output device according to claim 1,

further comprising encoding means for encoding the object frame data included in the inputted image signal

["Fig. 2(b) is an example of a frame buffer with a data compression scheme.

This example frame buffer 280 uses publicly well-known CSC (color space conversion) scheme"; page 2, paragraph 23, lines 1 – 4. "Input data to the scheme are 8-bit RGB data and are converted to 6-bit YCrCb format (block 288) and written into memory block 281. These data are read out and recovered to 8-bit RGB data format (block 282) and output as FBDT after just one frame interval"; page 2, paragraph 24, lines 1 – 5.

The "encoding means" corresponds to "color space converter, RGB to YCrCb format" **288**].

Regarding claim 9, ISHII further teaches the correction data output device according to claim 8,

further comprising decoding means for decoding the object frame data encoded by the encoding means

[Fig. 2(b) "color space converter, YCrCb to RGB format" 282 corresponds to the "decoding means"].

Regarding claims 10 and 14, ISHII further teaches a frame data correction device

[Fig. 4 data-emphasizing block 400 corresponds to the "frame data correction device"]

comprising the correction data output device as defined in claim 1,

wherein the object frame data are corrected on the basis of correction data outputted from said correction data output device

[Fig. 4 illustrates the correction of object frame data (i.e., "8-bit incoming display data" shown on the far left side) by correction data (i.e., over-drive data shown on the far right side)].

Regarding claims 11 and 15, ISHII further teaches a frame data display device

[Fig. 3 TFT LCD panel system block 300; page 3, para graph 51, lines 1 - 3]

comprising the frame data correction device as defined in claim 10,

wherein a frame corresponding to object frame data corrected by said frame data correction device is displayed on the basis of said corrected object frame data

[The "corrected object frame data" (i.e., over-drive data output from "data emphasizer"; **Fig. 3** reference number **350**) is fed to a "source driver" **311** which controls the "TFT LCD Panel" **310**].

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- U.S. Patent Application, 2003/0038768 A1 (Sakashita)
- U.S. Patent Application, 2002/0033789 A1 (Miyata)
- U.S. Patent Application, 2001/0038372 A1 (Lee)
- U.S. Patent Application, 2002/0030652 (Shibata)

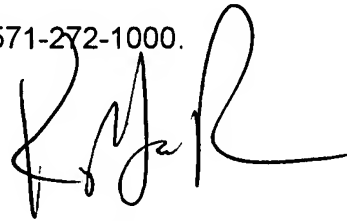
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter L. Cheng whose telephone number is 571-270-

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3007. The examiner can normally be reached on MONDAY - FRIDAY, 8:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Y. Poon can be reached on 571-272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'K. Y. Poon', with a stylized flourish at the end.

KING Y. POON
SUPERVISORY PATENT EXAMINER

plc